

Report to Economic Growth Scrutiny Panel

Agenda
Item:

A.2

Meeting Date: 21 January 2021
 Portfolio: Environment and Transport
 Key Decision: Yes
 Within Policy and Budget Framework: Yes
 Public / Private: Public
 Title: Local Environment (Climate Change) Strategy
 Report of: Jane Meek, Corporate Director of Economic Development
 Report Number: PC 03/21

Purpose / Summary:

The purpose of this report is to progress the adoption the Local Environment (Climate Change) Strategy.

Recommendations:

- To comment on the amended Strategy and supporting draft action plan.
- To comment on the approach to the business sector, through the Zero Carbon Cumbria Partnership.

Tracking

Scrutiny:	Health & Wellbeing Scrutiny Panel (14 January 2021) Economic Growth Scrutiny Panel (21 January 2021)
Executive	8 February 2021
Council	2 March 2021

1. BACKGROUND

1.1 Introduction

1.1.1 The Local Environment (Climate Change) Strategy and draft action plan draws together the work undertaken by Members, Officers and Partners since the Council's resolution in March 2019.

1.1.2 Public consultation has been completed and the feedback was presented to Executive in October 2020, along with the following two recommendations:

- *Executive are requested to recommend that Council adopt this strategy as the evolution of Agenda 21.*
- *Executive are requested to recommend that Council amends the net zero target date from 2030 to 2037, in line with the Carbon Baseline for Cumbria recommendation adopted by the Zero Carbon Cumbria Partnership.*

1.1.3 In November, Council considered the recommendations and amendments, the outcome being the withdrawal of the Strategy from the meeting agenda.

1.2 Member Advisory Group

1.2.1 The Member Advisory Group (MAG) is a cross-party, informal group that will provide elected Member input to the Local Environment (Climate Change) Strategy.

1.2.2 The MAG met on 23 November to discuss the Strategy and framework for action planning. The discussion on the strategy highlighted two points that Members felt needed strengthening in the Strategy:

- Leadership role of Council.
- Communication and engagement as a clear workstream, to be developed as a separate accompanying plan.

1.2.3 The MAG received presentations on the ongoing work on the organisation's carbon footprint and action planning, with the links to the Local Authority Climate Policy Group (LACPG) and the Zero Carbon Cumbria Partnership (ZCCP).

1.2.4 The MAG met again on the 21 December 2020 to review the amended strategy and draft action plan.

1.3 Countywide partnership work

1.3.1 The Zero Carbon Cumbria Partnership met in December to discuss the project proposal and an update on The Lottery Funding. It was reconfirmed for new members that the partnership is working to the 2037 net zero carbon target date. The Cumbria Baseline Report is now published on the Cumbria Observatory, it can be accessed through the following link:

1.3.2 The ZCCP recognised the need to tighten governance arrangements with a requests for more formal minutes and review of the Memorandum of Understanding for the partnership. There is now a regular ZCCP update item on the Public Health Alliance agenda.

1.3.4 The LACPG met in November and December to focus on funding and how to develop a road map to decarbonise estates, an update on the Public Sector Decarbonisation Scheme was delivered by Local Energy Hub North West.

1.4 Business engagement and action planning

1.4.1 The draft action plan (Appendix B) includes a paragraph on the overall scale of industry's carbon footprint is estimated at 13,174 ktCO₂e. This simple analysis of industries gives a broad perspective on emissions from businesses in Cumbria. It does not form part of the baseline figure for the Cumbria target (Net zero by 2037) because there is double counting between this and the footprint of residents and visitors. It is not based on local information about the characteristics of each industry in Cumbria.

1.4.2 The ZCCP have set out an approach for business using business sector groups, with each sector supported by resources from the ZCCP. An overall Programme Manager has been appointed who will lead and coordinate all of the activities and provide support to the sector panels.

1.4.3 Three steps have been suggested, to ensure a flexible but consistent approach for the sector panels:

- Stage 1: Understanding sector carbon footprints
- Stage 2: Develop Sector Roadmaps and Work streams
- Stage 3: Current Policy Framework and Funding landscape

The outcome will be an updated sector baseline, supported by high level but achievable roadmaps with revised assumptions for both scale and time.

The proposed business sectors, their outline scope and delivery groups are presented in the following table.

Sector	Scope	Delivery groups and key partners
Energy Generation	Low carbon energy generation potential (capacity study to feed in and support this)	Cumbria LEP Clean Energy Sector Panel
Housing	Strategic planning and low carbon housing (all sectors)	Cumbria Housing Group Construction LEP Sector Panel (to be confirmed)
Transport	Strategic transport planning. Community transport.	CCC (Highway Authority) LEP Transport and Infrastructure Panel Council Members: Engagement with Portfolio Holders and Communities and Place Scrutiny Board
Waste	Strategic Waste Management Waste minimisation Circular Economy	Cumbria Strategic Waste Partnership
Business & Industry	Supporting business resilience Opportunity of the low carbon economy. Raising awareness	LEP – Business Environment Strategy Group and Sector Panels in support
Rural	Supporting Rural Community – opportunity based approach to secure the long-term viability of Cumbria's Rural Sector based on new ELMS and natural capital system. Carbon offsetting and sequestration – Land Use, Land use change and Forestry	Cumbria LEP Rural Sector Panel NFU and Farmer Network

In addition to the 6 individual sectors several cross cutting themes will run through each of the sector plans such as tourism, health and energy efficiency.

Consideration will also be given to engagement, communication and education as cross cutting themes.

1.4.4 At the last ZCCP meeting (10 November 2020) the partnership received sector updates included presentations on:

- Housing - Jane Meek, Corporate Director Economic Development, Carlisle City Council.
- Waste - Partnership Development Officer (Cumbria Strategic Waste Partnership), Cumbria County Council.
- Energy - Head of Sectors, Cumbria Local Enterprise Partnership & Policy Team, Cumbria County Council.

1.4.5 The Local Environment (Climate Change) Strategy draft action plan is attached as Appendix B. The first part of the action plan is a focus on the next six months (December 2020 -May 2021), a period of constrained activity due to the ongoing emergency of the Covid-19 Pandemic. The second part covers the five years (2020-25), matching the Zero Carbon Cumbria Programme (ZCCP), which is funded for 5 years for £2. 5million.To help link the actions to the different carbon

footprint baselines (organisational or Cumbria) the action plan has been split into two separate sections:

- Organisational Actions: the actions that the Council can take with its own assets, policies, procedures and practices.
- Local Actions: the actions that the Council will work on locally through partnerships and collaboration.

The final part of the action plan covers the longer term, the future periods 2025-30 onwards, it is included as a set of indicative actions.

- 1.4.6 Once the draft Strategy (Council, March 2021) and action plan (Executive, February 2021) have been adopted a separate communication and engagement plan will be developed for delivery alongside the key actions.

2. PROPOSALS

- 2.1 The feedback from MAG on the Strategy can be incorporated into the Foreword with a new line of text:

The Council will lead by example with a clear strategy and a dynamic action plan that is consistent with the targets set and resources available.

- 2.2 The draft action plan provides more detail on how the Strategy and the objectives will be delivered; this supersedes the actions in the Strategy (pages 11-15). This allows a further edit to the Strategy with the removal of the high level actions, described as 'key actions' in the Strategy, through the following amendments:

Each objective has a set of actions listed under themes with a timescale for delivery. Each action will be linked to the carbon footprint and baselining work, using the scopes and options.

*The action plan is a working document, the latest version can be found at:
<https://www.carlisle.gov.uk/Council/Council-and-Democracy/Climate-Change>*

- 2.3 The Following amendment to Objective 5 has been discussed following the MAG meeting (21 December):

Objective 5: Supporting Council services, residents and businesses to mitigate against and adapt to the impacts of Climate Change.

- 2.4 The amended strategy is presented in Appendix A.

3. RISKS

- 3.1 There are several risks associated with this strategy:

- That the Council reputation will be damaged if it does not translate the resolution made in March 2019 into a working strategy and action plan.

- That the absence of a strategy may prevent the Council from accessing external funding that would mitigate and/or adapt to Climate Change.
- That the action plan may be too ambitious for the Council to deliver on its own and require additional capacity and resources.
- That the action plan may not deliver the 'net-zero' within the timescale currently expected.
- That expectations on assessing impacts and carbon footprinting may delay the taking of key decisions, which in turn could lead to the Council incurring additional costs or a loss of potential income.

4. CONSULTATION

- 4.1 The draft strategy was presented to Health & Wellbeing Scrutiny Panel on 20 February 2020 and Economic Growth Scrutiny Panel on 27 February 2020.
- 4.2 The public consultation on the Strategy took place from 28 August 2020 through to the 18 September 2020. A consultation document, setting out the background, context and key questions accompanied the draft. In addition the Cumbria Baseline Report was included on the website to inform respondents on the latest research and recommendations on target setting.
- 4.3 The amended Strategy and draft action plan will be scrutinised by Health and Wellbeing Scrutiny Panel and Economic Growth Scrutiny Panel in January 2021.
- 4.4 An annual report on the Strategy will be made available to Health and Wellbeing Scrutiny Panel for inclusion in their work programme.

5. CONCLUSION AND REASONS FOR RECOMMENDATIONS

- 5.1 The draft action plan is a working document which will be reserved to Executive, the Strategy being reserved to Council.
- 5.2 The Executive are asked to make the amended Strategy and draft action plan available for scrutiny.

6. CONTRIBUTION TO THE CARLISLE PLAN PRIORITIES

- 6.1 Clarity on a set of Climate Change objectives and actions will support the implementation of the Joint Public Health Strategy.
- 6.2 Climate Change adaptation and mitigation must be pursued to help to improve the health, wellbeing and economic prosperity of the people of Carlisle.

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Appendices**attached to report:**

A: Amended Local Environment (Climate Change) Strategy

B: Draft action plan

Note: in compliance with section 100d of the Local Government Act 1972 the report has been prepared in part from the following papers:

- **Cumbria Baseline Report (A report by Small World Consulting Ltd)**

Now available online at:

<https://www.cumbriaobservatory.org.uk/environment/environment-further-information/>

CORPORATE IMPLICATIONS:

LEGAL - As the Report states, Article 4 of the Council's Constitution reserves 'Agenda 21' to full Council. Whilst no longer an 'ongoing initiative', Agenda 21 is a topic area which has evolved to become known as 'Climate Change Strategy'. Given Council's decision that it views the matter (sustainability) as so important it wished to reserve it to full Council, it is sensible that the Climate Change policy be viewed as the evolution of Agenda 21. Accordingly, it is planned that it will follow the Council's Budget and Policy Framework procedure. As stated in the report, it is timely for the Council to update the terminology from Agenda 21 to whatever it believes best captures the updated policy.

FINANCE – The Council's commitment to becoming carbon neutral and the delivery of the objectives of the Climate Change Policy will involve financial implications on the Council's Medium Term Financial Plan; both positive and negative in terms of decreased or increased costs. These implications will need to be carefully considered when implementing any policy changes and will need to be included and considered as part of the annual budget setting processes.

EQUALITY – The draft action plan will be subject to a desktop Equality Impact Assessment in 2021.

INFORMATION GOVERNANCE – There are no information governance implications with this report.

Carlisle Local Environment (Climate Change) Strategy



Foreword



Human activity is damaging the environment in which we live and changing the world's climate.

Our Local Environment (Climate Change) Strategy aims to ensure that Carlisle City Council plays its full role in protecting the environment and in the worldwide movement which aims to tackle climate change.

Our commitment is, subject to public consultation and legal constraints, that all the activities of the Council, all strategic decisions, budgeting, and, in so far as the Council can influence, arrangements with partners, are in line with eliminating pollution and achieving net zero carbon emissions at the earliest possible date.

The challenge is deciding what the City Council can do. If we try to do everything, we will squander our resources and achieve nothing. It is important that we focus where we can influence change. The City Council will lead by example with a clear strategy and a dynamic action plan that is consistent with the targets set and resources available.

I would like to thank the Members who attended the working group for their contributions to this work. I would also like to thank all those that have contributed so far. Our strategy aims to ensure that all ideas and opportunities to address climate change or improve environmental performance are drawn together and are incorporated into appropriate actions, plans, strategies and future committee agendas for consideration.

The key to the success of our strategy, reaching net zero, will depend upon a co-ordinated and comprehensive programme of communication and engagement to encourage behavioural change by residents and businesses as well as the Council.

Working in partnership will be essential to reduce the carbon footprint for the whole of Carlisle.

Councillor Nigel Christian
Portfolio Holder for Environment and Transport

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Vision and High-Level Strategy



In March 2019 the Council passed a motion to declare a Climate Change Emergency. In April 2019, the Council adopted the Joint Public Health Strategy. The Strategy included the key aim:

‘To become a “carbon neutral” County and to mitigate the likely impact of existing climate change.’

In June, the Government announced an amend to the Climate Change Act 2008 to require net United Kingdom carbon emissions to be zero by 2050. The Council is committed to achieving net zero greenhouse gas emissions (GHG) at the earliest possible date.

The Joint Public Health Strategy sets out a vision for a Healthier Cumbria based on the five capitals, taking inspiration from the World Health Organization’s Healthy Cities Model. The future for a healthier Cumbria can be seen as having five key components:

Planet: Cumbria’s natural environment, from our world-class landscapes to the centre of our towns, will be protected and enhanced. Sustainability will be at the heart of future development and Cumbria will reduce its ecological footprint even as it develops economically.

People: Everyone in Cumbria will have the opportunity to develop and use their skills and talents in a way that recognises the value they bring to society and to enjoy a varied and fulfilling life.

Participation: Cumbrian communities will be strong, resilient and inclusive, with well developed social networks and widespread engagement with community life.

Place: Cumbria’s physical infrastructure will promote health and wellbeing, with good quality housing, a high-quality urban environment and good access to the services needed for a healthy lifestyle.

Prosperity: Cumbria’s economy will develop sustainably, with growth particularly focused on tackling poverty and providing quality employment for all.

The work done so far



Local Plan Policies

The Carlisle District Local Plan 2015-2030 sets out the long-term vision through the spatial strategy and strategic planning policies, seeking to ensure that future growth is sustainable. The Local Plan has four policy objectives that are directly related to this strategy:

Spatial Strategy and Strategic Policies Objectives

- To promote a sustainable pattern of development, which will contribute to building a strong, responsive and competitive economy, to support the vision for managed growth.
- To support strong, vibrant and healthy communities, by meeting the housing needs of present and future generations, in a high-quality environment with accessible local services.
- To contribute to protecting and enhancing our natural, built and historic environment (including improving biodiversity), using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change including moving to a low carbon economy.

Climate Change and Flood Risk Objectives

- To reduce emissions of greenhouse gases, including through securing energy from renewable sources, and avoid inappropriate development in areas at risk of flooding to ensure that the District is more resilient and less vulnerable to the effects of climate change and can successfully adapt to its effects.

Health, Education and Community Objectives

- To create a thriving, successful and healthy community for all by promoting cohesive mixed communities and ensuring that everyone can have a decent home, in a safe environment, with good access to health care, educational provision and other community facilities by sustainable modes, including walking and cycling.

Green Infrastructure Objectives

- To protect, enhance and increase the provision of the green and blue infrastructure across the District to create and maintain multifunctional, interconnected and attractive recreational and ecological networks for the benefit of residents, businesses, visitors and the wider natural environment.

Property, estate and fleet



The Council owns over £120.7 million in assets¹ across the whole district area, delivering a range of statutory and discretionary services. The operational and investment assets have been assessed to produce Display Energy Certificates (DECS) and Energy Performance Certificates (EPCS), where required. This information is being used to assess the assets against the Minimum Energy Efficiency Standards (MEES), these are the minimum level of energy efficiency required to let non-domestic property under the Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015.

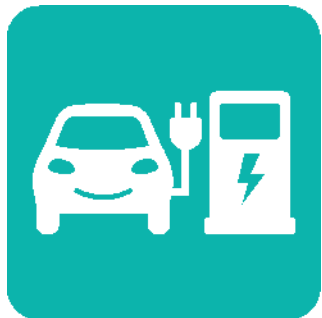
The 3 Year Repair and Maintenance Programme (2020/21 - 2022/23) delivers on the duty to manage property assets, particularly operational assets, in a safe and efficient manner and which contributes to the quality of service delivery. This maintenance strategy is fully integrated with the Asset Management Plan and environmental policy.

The Council has developed a Fleet and Plant Strategy that delivers on the commitment to reducing its impact on the local environment and improve local air quality by reducing vehicle emissions. Controlling fleet costs and conducting a robust 'fleet challenge' to determine genuine business need to support all fleet decisions is a key part of this strategy.

Recent projects that are making a positive impact include:

- Review of depots and efficient use of operational assets.
- Replacement of waste and recycling fleet with modern efficient vehicles.
- Continued investment in cycling and walking infrastructure.
- Renewable electricity generation through Photo-Voltaic installations on the roof spaces of The Sands Centre and Civic Centre.
- Programmed maintenance to improve the energy efficiency of the estate.
- Homelife grants tackling energy efficiency and fuel poverty.

Property, estate and fleet



The Council and its partners continue to develop and deliver Climate Change adaptation and mitigation. The following projects are underway, together they will significantly reduce the Council's greenhouse gas emissions:

- Sands Centre Redevelopment.
- Civic Centre Ground Floor Reinstatement.
- Replacement of footway lighting with energy efficient lamps.
- Ongoing replacement of fleet and plant with lower carbon vehicles and equipment.
- Waste management and recycling initiatives at operational sites.

The Council is delivering projects to help reduce Carlisle district's greenhouse gas emissions:

- Community Electric Vehicle Charging Points.
- Improvements to the cycling and walking infrastructure, increasing the network for active transport.

The Council is also working in partnership to adapt to Climate Change, over the next three years Carlisle will benefit from the delivery of new flood defences and upstream natural flood management projects.

Waste and recycling



The collection of waste is a duty of the Council, since 2004 the Council has provided extensive kerbside and community recycling services, leading the way on waste recycling.

The Joint Cumbria Waste Management Strategy 2008-20 and Cumbria Minerals and Waste Plan 2015-30 sets out the overall countywide strategy for waste and recycling. The simple goal is to climb the Waste Hierarchy, whilst retaining self-sufficiency and dealing with waste as close as practicable to the point at which it is generated.

The key targets from the strategy are:

The goal of increasing the recycling rate to 50% (by 2020) and 65% (by 2030) is reported as a Key Performance Indicator. The collected recycling rate for 2018/19 is 41.3%.

When the collection recycling rate is combined with the tonnages from the Household Waste Recycling Centres and the recovery of materials during disposal, this rate of recycling increases to 55.7%² (CSe05/2018/19).

Determining Carlisle's Carbon Footprint



A carbon footprint measures the total greenhouse gas emissions caused directly and indirectly by a person, organisation, event or product.³

Carbon emission largely come from several main sectors of the Cumbria economy:

- Energy.
- Housing.
- Transport.
- Waste.
- Industry/Infrastructure.
- Farming and Rural.
- Tourism.

The Countywide Zero Carbon Cumbria Partnership (ZCCP) will connect into these sectors to influence and communicate what will be needed to become zero carbon. The purpose of this group is to plan and oversee a radical programme of action that will enable Cumbria to become a carbon neutral county and to mitigate the likely impact of existing climate change.

In order to do this, the group will:

- Propose a shared definition of “carbon neutral”.
- Propose a target date by which this is to be achieved.

- Commission a baseline carbon audit for the County and agree ongoing monitoring mechanisms.
- Identify leadership for developing action across key topics.
- Establish a programme of action by key partners.
- Lead joint campaigning to encourage wider public awareness and action.

The Countywide Climate Change Working Group has commissioned work from Small World Consultancy which will be pivotable to establishing a robust and consistent methodology.

This report has now been published on the Cumbria Observatory at:

<https://www.cumbriaobservatory.org.uk/environment/environment-further-information/>

The Council has also been working in partnership with all the local authorities in Cumbria to develop a methodology for organisation carbon footprinting. This combined approach will enable the Council to report a carbon footprint alongside the Carlisle district footprint, whilst putting these figures into the wider Cumbria and national context.

Objectives



To achieve the strategic goal of net zero greenhouse gas emissions the following objectives will be progressed:

Objective 1:

Reducing emissions from the City Council estate and operations.

Objective 2:

Reducing energy consumption and emissions from homes and businesses in Carlisle and tackling fuel poverty, by promoting energy efficiency measures, sustainable construction, renewable energy sources and behaviour change.

Objective 3:

Reducing emissions from transport by promoting sustainable transport, reducing car travel and traffic congestion and encouraging behaviour change.

Objective 4:

Reducing consumption of resources, increasing recycling and reducing waste.

Objective 5:

Supporting Council services, residents and businesses to mitigate against and adapt to the impacts of Climate Change.

Each objective has a set of actions, listed with timescale for delivery. Each action will be linked to the carbon footprint and baselining work, using scopes and options.

The timescale for the delivery of any actions is linked to capacity and resources. A simple approach to the timescale using the terms short, medium or longterm is taken. These timescales are best described in terms of financial planning:

Short: Within the current budget year or budget cycle for the following year

Medium: Within the period of the current Medium-Term Financial Plan (currently 2020-25)

Long: Beyond the Medium-Term Financial Plan period but before the target date for net-zero

The action plan is a working document, the latest version can be found at:

<https://www.carlisle.gov.uk/Council/Council-and-Democracy/Climate-Change>

Partnerships and procurement



Everyone and every organisation can get involved in this strategy. The Carlisle Partnership stakeholder map recognises the many examples of positive actions already underway. In addition, this map identifies the key groups and organisations that have specific roles in driving forward this strategy and commitments.

The Council, along with its partners, is committed to ensuring that services are delivered in a way that protects the quality of the environment and minimises any adverse impact on health and wellbeing. The Council recognises that procurement and commissioning is fundamental in delivering more sustainable outcomes. To achieve this, it is necessary to ensure that environmental and broader sustainability considerations are considered throughout the procurement and commissioning process, along with the use of local suppliers where appropriate.

Three key actions will help deliver this:

- Carbon Footprint.
- National and Countywide Citizens' Assembly/ Jury, to involve the wider population.
- Carlisle Partnership Climate Change focus, which will proactively include young people, ensuring that they have a voice in shaping the future.

Procurement decisions will provide opportunities to continually improve our environmental performance, especially in major capital projects and service contracts. The key partners will include:

- Zero Carbon Cumbria Partnership.
- Carlisle Partnership.
- Carlisle Ambassadors.
- Borderlands Inclusive Growth Deal partners.
- Cumbria Strategic Waste Partnership.
- Cumbria Strategic Flood Partnership.
- Cumbria Local Resilience Forum.
- Cumbria Public Health Alliance.

Performance



Alongside this strategy datasets will be identified and developed into management information for monitoring. As projects are initiated Key Performance Indicators will be established and monitored throughout the project lifecycle. This management information will be added to the Performance Dashboard and the KPIs will be included in the End of Year Performance Report for the Council's Executive and the Carlisle Partnership.

This strategy will be reviewed annually, and this review will be made available for public overview and scrutiny.

Local Environment (Climate Change) Strategy

Draft Framework for Action Planning

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Version 0.7

December 2020

Introduction

This framework for action planning is a working document for the delivery of the Local Environment (Climate Change) Strategy (LECCS).

The first part of the action plan is a focus on the next six months (December 2020 -May 2021), a period of constrained activity due to the ongoing emergency of the Covid-19 Pandemic.

The second part covers the 5 years (2020-25), matching the Zero Carbon Cumbria Programme (ZCCP), which is funded for 5 years for £2.5million. This project is working towards a zero carbon Cumbria by 2037. The ZCCP will run from September 2020 and invest £2.65m (including £195k match), to provide the 'step change' needed to deliver decarbonisation over the following 12 years to 2037.

The ZCCP has a draft programme linked to the Joint Public Health Strategy, which prioritised a carbon neutral County. The ZCCP reports directly to the Cumbria Leaders Group and Cumbria Chief Executives Group (8 local authorities). It has a regular update item on the Public Health Alliance agenda.

To help link the actions to the different carbon footprint baselines (organisational or Cumbria) this plan has been split into two separate sections:

- Organisational Actions: the actions that the Council can take with its own assets, policies, procedures and practices.
- Local Actions: the actions that the Council will work on locally through partnerships and collaboration.

The final part of the action plan covers the longer term, the future periods 2025-30 and beyond, it is included as a set of indicative actions.

The action plan has been developed from several sources and is a working document:

- Member Advisory Group (MAG)
- Health & Wellbeing Scrutiny Panel feedback
- Economic Growth Scrutiny Panel feedback
- The public feedback on the LECCS in August/September 2020
- Feedback from ZCCP partners
- The Local Authority Climate Policy Group
- Climate Change Working Group (July/August 2019, replaced by the MAG)
- Internal Officer Working Group

The actions have been cross-referenced against two checklists and compared to other plans published on the Climate Emergency Action website:

- Ashden Toolkit
- Friends of the Earth 33 Actions for Local Councils
- Climate Emergency Action Planning

The roadmap brings the key actions and milestones for this Strategy together in a simplified overview, this is presented in Figure 5.

Methodology

The actions within this plan have been subjected to a set of criteria and coding to ensure that the actions remain relevant, purposeful and effective in delivering the overall Strategy. The actions are coded against the following criteria and definitions:

- Theme
- LE(CC)Strategy Objectives (1-5)
- Timeframe
- Outcome
- Carbon Accountancy
- Finances

Read together, this criteria makes the actions specific, measurable, achievable, realistic and timebound.

Themes

The themes have been developed from existing strategies, topics raised in the consultation and the key actions in the Zero Carbon Cumbria Programme Proposal.

LECCS Strategic Objectives (LECCS Obj.)

The strategy is built around five objectives.

Objective 1: Reducing emissions from the City Council estate and operations.

This objective focuses on the Greenhouse Gas (GHG) emissions from our operations, fleet and estate. The main components being the procurement of electricity, gas and vehicle fuel. It will also include the energy efficiency of our estate and the fuel consumed through business miles. The themes included under this objective are assets, finance, people (staff and Members), transparency (data) and communications and engagement.

Objective 2: Reducing energy consumption and emissions from homes and businesses in Carlisle and tackling fuel poverty, by promoting energy efficiency measures, sustainable construction, renewable energy sources and behaviour change.

Domestic energy consumption is a major component of our district carbon footprint, the local roll-out of smart meters and the Council's own initiatives to tackle fuel poverty and improvements to energy efficiency are good medium term actions. The longer term challenge is around the sustainable construction and local renewable energy networks. The themes included under this objective are Local Plan, regeneration, housing, Building Control, and renewal energy.

Objective 3: Reducing emissions from transport by promoting sustainable transport, reducing car travel and traffic congestion and encouraging behaviour change.

Transport is likely to be the largest component of our district carbon footprint and continues to present a risk to the success of the national strategies aimed at reducing GHG. This objective will focus on the opportunities for countywide and local action. The themes included under this objective are movement and air quality.

Objective 4: Reducing consumption of resources, increasing recycling and reducing waste.

As a waste collection authority this is our core business, the GHG emission from the service need to be considered alongside the whole process of collection and disposal. As well as the 'embodied carbon' in the waste itself. This is the service that all of our residents use and has come to symbolise the 'greenness' of a council and an area through its recycling rate. This

objective is linked directly to objectives 1 and 5. The themes included under this objective are waste, recycling, food and community development.

Objective 5: Supporting Council services, residents and businesses to mitigate against and adapt to the impacts of Climate Change.

This broad objective recognises the challenge of mitigating against Climate Change and adapting to the potential impacts. This objective will be central to the Local Environment (Climate Change) Strategy's Communication and Engagement Plan. The themes under this objective are equally as broad, crossing-over the objectives 1-4. They include wildlife and habitats (bio-diversity), green infrastructure, countryside and landscapes, contaminated land, Future Flood Risk Management, and severe weather and related risks. It also includes the theme of governance in the context of partnership working, monitoring performance and evaluating outcomes.

Priority

The final decision on prioritising any action that requires a key decision is determined through the Council's Constitution.

The potential for co-benefits are a consideration in prioritisation, for example an action to reduce the consumption of carbon intense heat within the home through improved energy efficiency will also have a positive impact on fuel poverty. There are clear health benefits from improved air quality, healthier diets and more walking and cycling. The drive for clean growth has the potential for industrial and commercial opportunities. The replacement of petrol powered hand tools with battery powered hand tools has the co-benefits of less vibrations and less noise, with less disturbance to surroundings.

Finances

The Council is committed to becoming carbon neutral in the future and there may be a requirement for significant investment in achieving this goal, with recovery through the achievement of efficiency savings and/or by maximising any external grants and contributions available to support the strategy and action plan through the Council's Funding Strategy. However, any carbon reducing schemes will initially have to be funded from resources currently contained within the Council's existing Revenue and Capital budgets; with any new climate change initiatives, following the formal adoption and approval of the Local Environment (Climate Change) Strategy, being supported by robust business cases with a cost benefit analysis provided.

The Council also maintains a vehicle Plant and Equipment Replacement Plan which outlines the anticipated replacement lifecycle for the main items of fleet it requires to operate services. This plan is updated annually and is fed into the budget process to determine the capital requirement.

Carbon Accounting

In 2017, the UK emitted 460 million tonnes of carbon dioxide equivalent, compared with 794 million tonnes of carbon dioxide equivalent in 1990.

Cumbria Baseline (Extracts from Report)

The Cumbria Baseline Report rests on a simple principle:

'We have operated from the principle that it is more informative to make best estimates of even the most poorly understood components of the footprint, and to discuss the uncertainty openly, than to omit them from the analysis.'

The report acknowledges that:

'The complexity of supply chains and the difficulties in obtaining accurate data dictate that footprinting can only offer an estimate rather than an exact measure, and the figures in this report should be viewed in that context.'

Overall, the report is a broad guide to the size and relative significance of different components of its approach to carbon accounting. The components are:

- Production based emissions

The data behind these emissions estimates is from the Office of National Statistics Local Authority CO₂ Emissions Estimates 2005-2017, calculated by Ricardo Energy and Environment¹.

As an example, emissions resulting from the purchase of goods by residents and visitors would not feature in a production-based emissions assessment, since all the emissions take place in the supply chains of the products rather than at the point of purchase. The largest part of the production-based carbon footprint comes from transport, closely followed by industrial and commercial fuel use. Emissions from vehicles on the M6 motorway have been excluded.

- Consumption-based emissions

We assess the greenhouse gas 'footprint' of residents, visitors and industry, including the supply chains of everything that residents and visitors buy and do whilst in Cumbria. Consumption-based reporting attributes the emissions from product and service supply chains to Cumbria, **regardless of where emissions are physically released during production**. The inclusive treatment of supply chain emissions, as presented here, differs from more standard 'production-based' emissions assessments, but gives a more complete and realistic view of impacts of final consumption.

Consumption-based reporting is important for looking at the climate change impacts that people and businesses have through their entire lifestyles, including the food they eat and the things they buy. Thus, in the case of car travel the final figure is typically around double that of the exhaust pipe emissions.

The consumption-based assessment includes emissions resulting from everything residents do and buy in their personal lives and everything that visitors do and buy while in Cumbria, as well as their travel to and from the county. More specifically, the following is within the scope of this report:

¹ BEIS, June 2019, UK local authority and regional carbon dioxide emissions national statistics: 2005-2017. <https://tinyurl.com/UKCO2PB>

- all residents' personal travel and visitor travel to, from and around Cumbria;
- fuel and electricity consumed in homes and places to stay;
- emissions from food and drink and other purchases;
- emissions resulting from the use of services, including public services; and
- the supply chains of all the above (e.g. fuel supply chains and embodied emissions).

As a separate analysis, we also include a simple assessment of industry emissions. Consistent with the consumption-based reporting approach, this includes both direct emissions and supply chain emissions.

Cumbria's Production-based CO₂ emissions

Cumbria's total production-based emissions for 2017 were 3.18 MtCO₂ (Figure 1). This includes emissions railways passing through the county, and removals from land use, such as through peat restoration and tree planting. Emissions from vehicles travelling along the M6 motorway have been excluded.

Broken down by local authority, the highest emissions (excluding removals from Land Use, Land Use Change and Forestry – LULUCF). Removals from LULUCF in Cumbria are estimated to be around 0-20 tonnes Carbon per km² from Forest Land, with minor removals from grassland and cropland management².

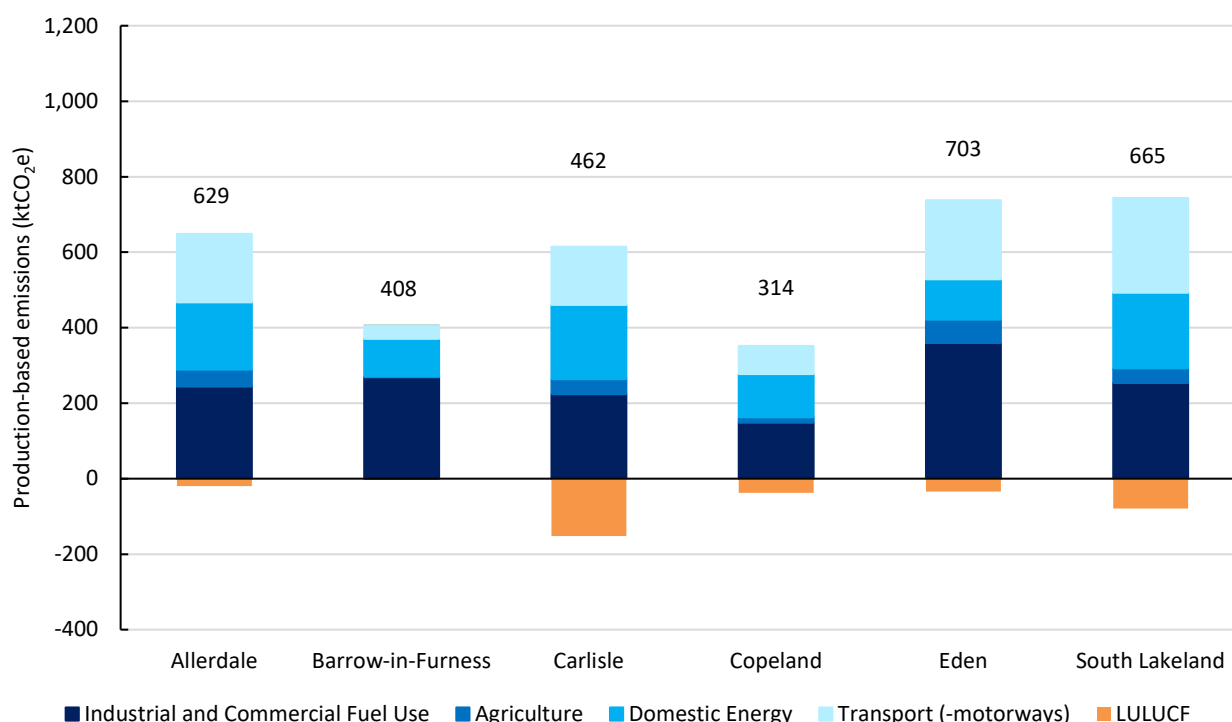


Figure 1: Total production-based CO₂ emissions by sector, broken down by Cumbrian local authority, net figures are labelled on the top of each district bar.

² Centre for Ecology & Hydrology for BEIS (2019). Mapping Carbon Emissions & Removals for the Land Use, Land Use Change and Forestry Sector: Report based on the 1990-2017 Inventory. See: www.gov.uk/government/statistics/uk-local-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017.

Cumbria's Consumption-Based GHG Emissions

The total GHG 'footprint' of residents and visitors is estimated at 11.5 MtCO₂e for 2018. This includes visitors' travel to and from Cumbria, their consumption within Cumbria, and everything residents do, whether within or outside of the boundary of Cumbria. The consumption-based assessment includes all GHG emissions associated with everything that residents and visitors buy or consume – this includes the supply chains involved in provision of goods and services.

Emissions by consumers are broken down into two categories: Residents of Cumbria and Visitors to Cumbria. Resident emissions account for 51% of the total. Visitors travelling to and from Cumbria make up 36% of the total footprint, and 13% of the emissions come from visitors within Cumbria. The emissions per resident per day are 35 kgCO₂e which is the same as the UK average, whereas the emissions for visitor are 26 kgCO₂e.

In Figure 2 this is broken down by category, highest emissions arise from visitor air travel (2.1 MtCO₂e), visitor fuel consumption (1.4 MtCO₂e travelling to Cumbria and 540 kilotonnes (kt) CO₂e within Cumbria) and resident food and drink (1.5 MtCO₂e; Figure 2).

On a per capita basis, Cumbria residents' consumption-based footprint is broadly in line with the UK average.

Cumbria visitors have a greater proportion of driving emissions (both fuel and wear and tear) in their footprint whilst in Cumbria (approximately three times the UK average), and a higher proportion of emissions from eating out and recreational activities than residents. Overall, visitors' footprint is less than that of the UK average due to lower emissions from household energy and other services. These differences reflect the difference between typical activities of residents and visitors. In contrast to residents, visitors' emissions are dominated by air and road travel. Visitors emit more carbon travelling to and from Cumbria than they do during their stay.

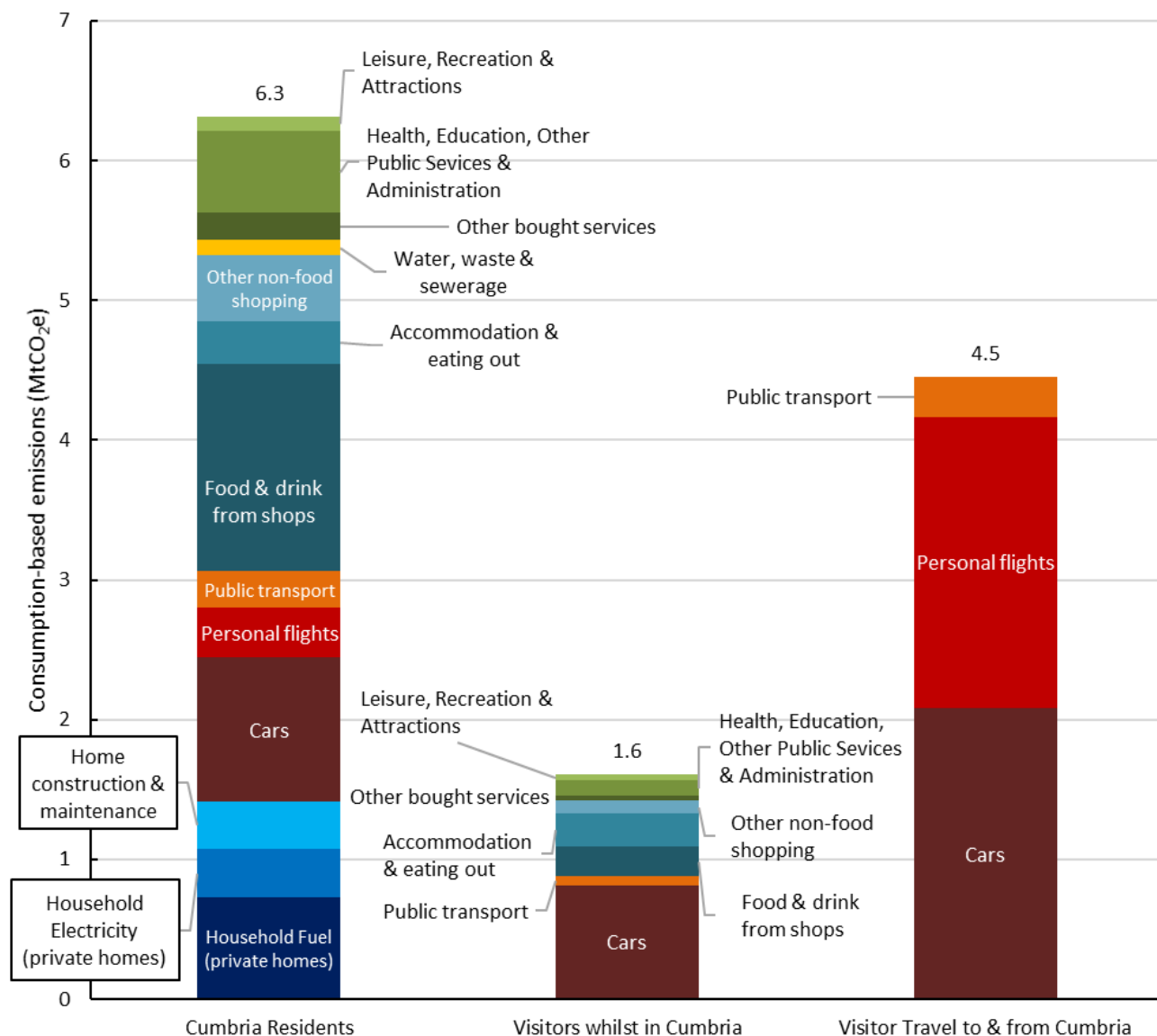


Figure 2: Total consumption-based GHG emissions broken down by category and consumer

The overall scale of industry's footprint is 13,174 ktCO₂e.

This simple analysis of industries gives a broad perspective on emissions from businesses in Cumbria. It should not form part of the baseline figure because there is double counting between this and the footprint of residents and visitors. It is not based on local information about the characteristics of each industry in Cumbria.

Carlisle City Council Baseline

The Council's gross³ carbon footprint for 2018/19 was 3227 tonnes CO₂e.

We have used production accounting for the Council's carbon footprint. Production accounting only considers day-by-day emissions from sources such as buildings and vehicles. Production emissions are relatively straightforward to measure and account for, consumption emissions are much more difficult to quantify as most emissions are occurring elsewhere and produced by other parties.

This approach is the same as the National UK Baseline approach (page 5 and 11), for the Council we are measuring:

Scope 1: Emissions by authority owned vehicles and emissions from gas and oil boilers, the energy used for operational work such as collecting waste and maintaining our parks. **(1659t CO₂e.)**

Scope 2: Grid Electricity across the estate. **(397t CO₂e.)**

Scope 3: Business travel, transmission & distribution losses¹, and leased out assets such as the leisure centre. **(1172t CO₂e.)**

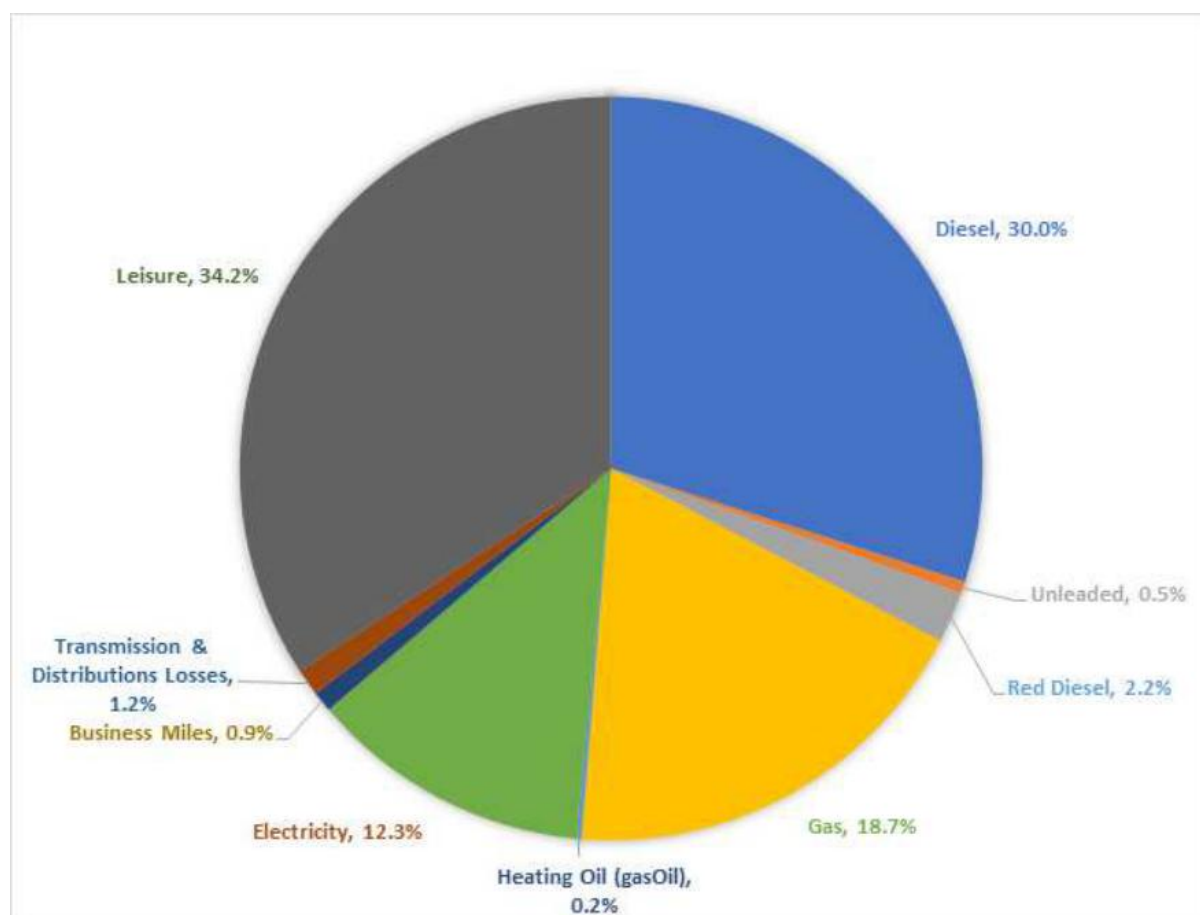


Figure 3: Main sources of the Council's carbon footprint

³ The Council's microgeneration of renewal energy is estimated at 47,000kwh, saving 12(t)co₂e. The Council's net carbon footprint is estimated at 3215 tonnes CO₂e.

Targets

UK National net zero by 2050

The UK Government's net zero target was passed into law in June 2019. This target is measured through the Estimates of the UK's greenhouse gas (GHG) emissions, published by the Department for Business, Energy and Industrial Strategy (BEIS), are used as the baseline for monitoring the Climate Change Act net zero target. These estimates, known as territorial and which are **production-based** estimates, include GHG emissions or removals from:

- businesses based in the UK regardless of where in the world they are registered.
- the activities of people that live in the UK as well as non-UK visitors.
- land such as forest, crop or grazing land.

They exclude emissions or removals from:

- international air travel.
- international shipping.
- UK residents abroad.
- UK Crown dependencies and overseas territories.
- the burning of biomass such as wood, straw, biogases and poultry litter for energy production.
- land such as peatland.
- the production of goods and services that the UK imports from other countries.

Cumbria net zero by 2037

This is the most feasible target that can be regarded as being in line with the requirements laid down by the IPCC for “well below 2 degrees and in pursuit of 1.5 degrees” of global warming.

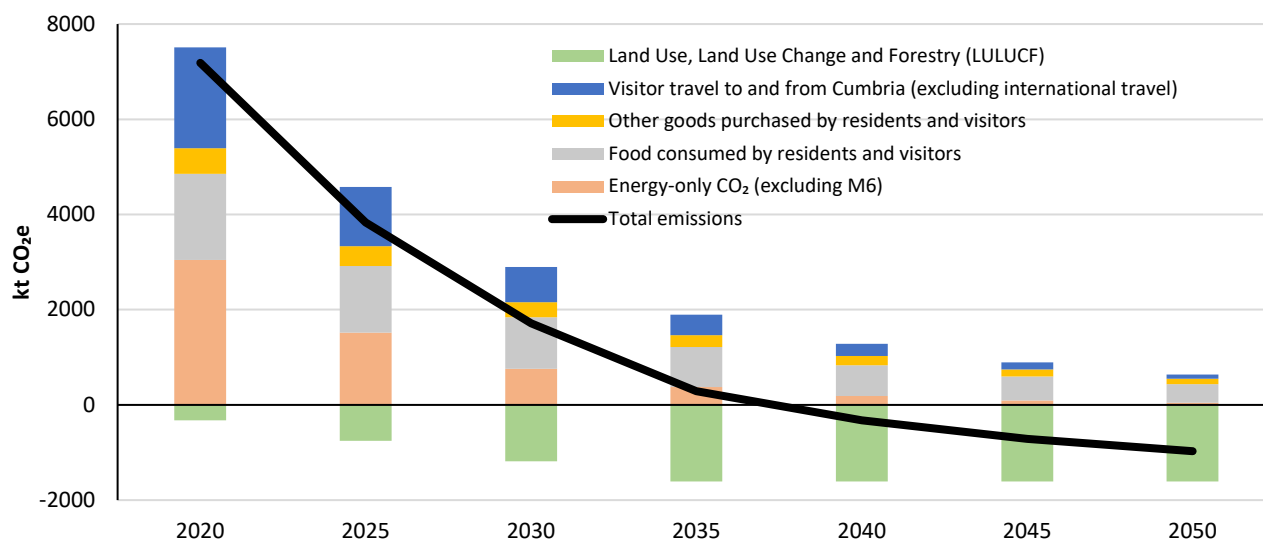
The target includes the following:

- Energy-only CO₂ measured on a production basis, excluding the M6 (over which Cumbria has little influence);
- GHG emissions from food consumed by residents and visitors;
- GHG emissions from other goods purchased by residents and visitors;
- GHG emissions from visitor travel to and from Cumbria, excluding international visitor travel; and
- Land Use, Land Use Change and Forestry (LULUCF) – these are net negative emissions.

Business supply chains are included where businesses supply the local and visitor economy. However, businesses should still be encouraged to manage their own supply chain carbon.

A trajectory for achieving Net Zero by 2037 is set out in the graph and table in figure 4, the annual percentage changes are set out against the categories in scope for the overall target.

Net Zero by 2037 Trajectory, data and percentage reductions



Raw Data Breakdown of projected emissions (kt CO ₂ e)	Net zero by 2037			
	2020	2035	2040	Changes starting from 2019 baseline
Energy-only CO ₂ (excluding M6)	3048	377	188	Annual reduction of 13%
Food consumed by residents and visitors	1807	837	648	Annual reduction of 5%
Other goods purchased by residents and visitors	535	248	192	Annual reduction of 5%
Visitor travel to and from Cumbria (excluding international travel)	2117	436	257	Annual reduction of 10%
Land Use, Land Use Change and Forestry (LULUCF)	-322	-1611	-1611	Increase of 400% in annual removals after 15 years (negative emissions)
Total emissions (tonnes)	7185	287	-326	

Figure 4: Net Zero by 2037 Trajectory, data and percentage reductions

Carlisle City Council net zero by 203X.

A five year scenario (2020-2025) for cumulative reductions in the Council's carbon footprint, from the 2018/19 baseline, includes:

- Rapid uptake of homeworking as required through the Covid-19 Pandemic.
- Completion of the Sands Centre Redevelopment and closure of the Pools.
- Completion of the Civic Centre Ground Floor Reinstatement.
- Completion of the footway lighting replacement project.
- Replacement of machinery, cars and small vans with Electric Vehicles operating out of an improved depot, suitable for supporting this new fleet.
- Replacement of petrol powered hand operated equipment with battery powered equipment.
- Energy efficiency improvements to operational assets delivered through the Asset Management Plan and externally funded projects.
- Reduction in business miles claimed for petrol and diesel vehicles, as employees switch to Electric Vehicles.
- Net biodiversity gains and negative emissions through green spaces strategy.
- Net biodiversity gains and negative emissions from 'Start with the Park' approach to St. Cuthbert's Garden Village.

Beyond the first five years (2025-37) the following scenarios would enable further reductions in the Council's carbon footprint, subject to available technology without incurring excessive costs:

- Replacement of waste fleet with alternative fuelled vehicles operating out of an improved depot, suitable for supporting this new fleet.
- Switching from non-renewable to renewable energy supplies for gas and electricity across all operational assets.
- Reduction in business miles claimed for petrol and diesel vehicles as employees continue to switch to Electric Vehicles.
- Increased microgeneration of renewable energy from Council's operational assets.
- Inclusion of all Council's Green and Blue Infrastructure in Land Use, Land Use Change and Forestry (LULUCF).

Roadmap

Figure 5: Outline roadmap and milestones for the LE(CC) Strategy action plan implementation

INSERT DESIGNED CHART TO FOLLOW

Major Projects, Key Strategies, Main plans, Other milestones

Actions for the next six months (December 2020-May 2021)

Theme	Action	LE(CC)S Obj.	Timeframe	Outcome	Carbon Accountancy	Finances
Assets	Sands Centre Redevelopment	1	2020/21-2022/23	Improved energy and heat efficiency from the Leisure estate. Reduced demand on asset management and future maintenance.	Production (Scope 3: Leisure centre) and Consumption (Leisure and recreation, attractions)	Budget 2020/21
Assets	Civic Centre Ground Floor Reinstatement	1	2020/21-2021/22	Improved energy and heat efficiency of operational buildings.	Production (Scope 1: Gas and Scope 2: Electricity)	Budget 2020/21
Assets	Footway Lighting (LED Project)	1	2020/21	Improved energy efficiency of operational assets.	Production (Scope 2: Electricity)	Budget 2020/21
Assets	Fleet Strategy: Vehicle replacement reviews for each service area.	1	2020/21	Regular review of fleet replacement programme to forecast future costs for vehicle replacement. Data model for CAPEX / Decarbonisation prioritisation and decision making.	Production (Scope 1: Petrol and Diesel and Scope 2: Electricity)	Budget 2021/22 and future external funding bids
Assets	Fleet: Energy Saving Trust Consultancy (EST)	1	2020/21	Advice and recommendations on fleet and mileage to improve energy efficiency.	None	None required
Assets	Fleet Challenge Plant /trailers / hand operated equipment	1	2020/21	Improved energy efficiency of equipment.	Production (Scope 1: Petrol and Red Diesel and Scope 2: Electricity)	None required
People	Staff competencies: Promoting Personal Wellbeing and Environmental Responsibility	1 & 5	2020/21	Core values and competencies included in Appraisal rounds.	Production and Consumption	None required

Theme	Action	LE(CC)S Obj.	Timeframe	Outcome	Carbon Accountancy	Finances
People	Workforce Plan: Agile Working Policy	1	2020/21	Reduction in travel to and from work and between work settings.	Consumption (travel)	None required
People	Workforce Plan: Environmental responsibility training module	1	2020/21	Raising awareness of local environment and climate change challenges.	Production and Consumption	None required
Technology	ICT Strategy: Agile working ICT equipment and networks	1	2020/21	Reduction in travel to and from work and between work settings.	Production and Consumption	Current budget
Finance	Funding Strategy: Identifying CAPEX Opportunities for decarbonisation and renewal energy.	1	2020/21	Maximising external funding.	Production (Scope 1 and 2)	None required
Communications and engagement	Targeted campaigns to encourage behaviour change	2 & 5	2020/21	Engagement and awareness raising.	Production and Consumption	None
Movement	<p>Electric Vehicle Charging: On street Charging Infrastructure</p> <p>Working with partners to expand provision of EV charging points in Carlisle including electric bikes</p>	3	2019/20-2020/21	<p>Stimulate demand for EV's in areas without off street parking</p> <p>Increased take up of electric vehicles, allowing people to save money on fuel costs</p> <p>Reduction air pollution and CO2 emissions</p>	Production and Consumption	<p>External funding secured</p> <p>The current SOSCI project has a budget of £220k to provide 40 connections</p>

Organisation Actions (2020-2025)

Theme	Action	LECCS Obj.	Timeframe	Outcome	Carbon Accountancy	Finances
Assets	Sands Centre Redevelopment	1	2020/21-2022/23	Improved energy and heat efficiency from the Leisure estate. Reduced demand on asset management and future maintenance.	Production (Scope 3: Leisure centre) and Consumption (Leisure and recreation, attractions)	Budget 2020/21
Assets	Civic Centre Ground Floor Reinstatement	1	2020/21 - 2021/22	Improved energy and heat efficiency of operational buildings.	Production (Scope 1: Gas and Scope 2: Electricity)	Budget 2020/21
Assets	Asset Management Plan Maintenance Plan	1	2020/21	Improved energy and heat efficiency of the operational and community building assets	Production (Scope 1: Gas and Heating Oil and Scope 2: Electricity)	Budget 2020/21 and 2021/22
Assets	Housekeeping improvements	1	2021/22	Reduce demand on asset management though improvements in housekeeping.	Production (Scope 1: Gas and Heating Oil and Scope 2: Electricity)	None
Assets	Energy Management System	1	2021/22	Improved energy and heat efficiency.	Production (Scope 1 and 2)	Budget Bid 2021/22
Assets	OLEV Workplace Charging Scheme	1 & 3	2021/22	Improved EV Charging Infrastructure to enable workplace charging for staff and Members.	Consumption (travel)	Future external funding and internal budget bid as a match
Assets	Footway Lighting (LED Project)	1	2020/21	Improved energy efficiency of operational asset.	Production (Scope 2: Electricity)	Budget 2020/21
Assets	Fleet Strategy: Handbook for Drivers	1	2020/21	Improved energy efficiency of use of operational assets.	Production (Scope 1: Petrol and Diesel and Scope 2: Electricity)	None required
Assets	Fleet Strategy: Vehicle replacement reviews for each service area.	1	2020/21	Regular review of fleet replacement programme to forecast future costs for vehicle replacement. Data model for CAPEX / Decarbonisation prioritisation and decision making.	Production (Scope 1: Petrol and Diesel and Scope 2: Electricity)	Budget 2021/22 and future external funding bids

Theme	Action	LECCS Obj.	Timeframe	Outcome	Carbon Accountancy	Finances
Assets	Future fleet and depot options: Depot infrastructure	1 & 5	2023/24	Assess capacity and step-up charging infrastructure in depot to support this expansion.	Production (Scope 1: Petrol and Diesel and Scope 2: Electricity)	None required
Assets	Fleet Strategy: Decarbonisation of Fleet, Data set, Model and Scorecard	1	2021/22	Visuals for Fleet Challenge and reviews.	None	Free external consultancy support
Assets	Fleet: Energy Saving Trust Consultancy (EST)	1	2020/21	Advice and recommendations on fleet and mileage to improve energy efficiency.	None	None required
Assets	Fleet Challenge Plant /trailers / hand operated equipment	1	2020/21	Improved energy efficiency of equipment.	Production (Scope 1: Petrol and Red Diesel and Scope 2: Electricity)	None required
Assets	Fleet: Grey Miles Recommendations (EST)	1	2021/22	Advice and recommendations on 'grey miles' within operations.	Production (Scope 3: Petrol and Diesel) / Consumption (travel)	None required
Assets	Decarbonisation of Estate Data Set, Model and Scorecard	1	2021/22	Data model for CAPEX / Decarbonisation prioritisation decision making.	Production (Scope 1 and 2)	External Funding Bid for consultancy support
Assets	One Public Estate Project (Phase 7)	1 & 5	2021/22	Better use of public assets.	Production and Consumption	External Funding
Assets	Investment assets: Minimum Energy Efficiency Standards	5	2020/21	Improved energy and heat efficiency.	Production and Consumption	None required
Assets	Develop an evidence base for climate change adaption.	5	2021/22	To have a better understanding of the climate risks facing the Council and district and the adaptation actions that will be the most effective.	Not applicable	None
People	Staff competencies: Promoting Personal Wellbeing and Environmental Responsibility	1 & 5	2020/21	Core values and competencies included in Appraisal round.	Production and Consumption	None required

Theme	Action	LECCS Obj.	Timeframe	Outcome	Carbon Accountancy	Finances
People	Workforce Plan: Agile Working Policy	1	2020/21	Reduction in travel to and from work and between work settings.	Consumption (travel)	None required
People	Workforce Plan: Council Employee Travel.	1	2021/22	Reduction in travel to and from work and between work settings.	Consumption (travel)	None required
People	Workforce Plan: Environmental responsibility training module	1	2020/21	Raising awareness of local environment and climate change.	Production and Consumption	None required
People	Workplace Healthy Eating Statement	1	2020/21	Healthier buffets with low carbon menus.	Consumption (Food)	Revenue budget cost codes
Technology	ICT Strategy: Agile working ICT equipment and networks	1	2020/21	Reduction in travel to and from work and between work settings.	Production and Consumption	Current budget
Finance	Funding Strategy: Identifying CAPEX Opportunities for decarbonisation and renewal energy.	1	2020/21	Maximising external funding.	Production (Scope 1 and 2)	None required
Finance	Procurement: Review activity and strategy to develop a procurement guide on climate change impacts/assessment.	1	2021/22	Environmental responsibility steer for service managers and contractors.	Consumption	None required
Finance	Procurement: Tender guidance on Environmental & Climate Change Responsibility.	1	2021/22	Environmental and broader sustainability considerations are considered during procurement.	Consumption	None
Transparency	Scheme of Publication for data and data models	1 & 5	2021/22	Public engagement and transparency.	Not applicable	None

Theme	Action	LECCS Obj.	Timeframe	Outcome	Carbon Accountancy	Finances
Communications and engagement	New and refreshed webpages for Local Environment and Climate Change	5	2021/22	Engagement and education.	Not applicable	None
Communications and engagement	Interactive programme of digital communication and engagement	5	2021/22	Engagement and education.	Not applicable	None
Communications and engagement	Targeted campaigns to encourage behaviour change	2 & 5	2020/21	Engagement and awareness raising.	Consumption	None
Communications and engagement	Celebrating success with local case studies demonstrating positive action.	5	2021/22	Celebration and promotion of positive action through the Local Environment (Climate Change) Strategy.	Not applicable	None
Communications and engagement	Partnerships: Collaboration on a wider, local corporate response.	5	2021/22	Celebration and promotion of positive action through the partnership.	To be confirmed	None
Communications and engagement	Partnerships: Carlisle Ambassadors and Young Ambassadors sessions on Local Environment and Climate Change.	5	2021/22	Broadening engagement.	Not applicable	None

Local Actions (2020-2025)

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
Local Plan	St Cuthbert's Garden Village : Supplementary Planning Document	2	2020/21	To provide detailed design guidance to help articulate what is meant by 'high quality design within the context of St Cuthbert's'.	Production and Consumption	Budget 2020/21 and 2021/22
Local Plan	St Cuthbert's Garden Village : Local Plan, Draft St Cuthbert's Garden Village Policies	2	2020/21-2022/23	Upon adoption set the legal framework to guide the preparation and assessment of future planning applications; Enable and support the timely delivery of infrastructure provision through both developer contributions and/or external funding bids; Facilitate the delivery of land release to help address the imbalance of employment land between the north and south of the City.	Production and Consumption	Budget 2020/21 and 2021/22
Local Plan	St Cuthbert's Garden Village : Strategic Design Framework	2.	2020/21	The Masterplan Framework appraised several spatial alternatives for the distribution of homes, jobs and community infrastructure. This took account: landscaping (such as topography and physical features); the need to retain a village-like character; sustainable mobility (prioritising walking cycling and public transport to new local centres, schools and services); and provision of a range of housing densities and usable open spaces and green infrastructure.	Production and Consumption	Budget 2020/21 and 2021/22
Local Plan	Local Plan / Annual Monitoring Report: 106 'planning gain' projects	2	2020/21	Projects that will: Prescribe policy interventions Compensate for local loss of value or amenity Mitigate with positive impacts.	Consumption	None required
Local Plan	Introduce a Consequential	2	To be confirmed	Energy efficiency improvements through planning, development control and building control.	Production and Consumption	None required

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
	Improvements Policy as part of the Local Plan					
Local Plan	Supplementary Planning Document adapt to the impact of Climate Change	5	To be confirmed	Existing policies: CC4_Flood risk and development CC5_Surface water management and Sustainable Drainage Systems	Production and Consumption	None required
Local Plan	Solar Panels	2	2015-2030	Local Plan Evidence base	Production and Consumption	None required
Local Plan	Promote low carbon and renewable energy provisions in new developments through Local Plan policies.	2	2015-2030	Current policies are: CC1_Renewal energy CC2_Energy from wind CC3_Energy conservation, efficiency and resilience.	Production and Consumption	None required
Regeneration	Town Investment Plan	2,3 & 5	2020-To be confirmed	The focus will be on clean housing growth and low carbon lifestyles. To enable Carlisle's businesses, people and communities to be resilient to current and future economic and environmental challenges including climate change, economic exclusion and unemployment, and recovery from the Covid-19 pandemic.	Production and Consumption	External Funding
Regeneration	Carlisle Station Redevelopment	2,3 & 5	2020-To be confirmed	These improvements will increase connectivity and help future proof the station.	Production and Consumption	External Funding
Regeneration	Future High Street Fund	2,3 & 5	2020-To be confirmed	Revitalising the Historic Quarter and evening economy are key regeneration priorities.	Production and Consumption	External Funding

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
Regeneration	Caldew Riverside	2,3 & 5	2020-To be confirmed	The development of this site will fundamentally improve the vitality and viability of Carlisle's city centre by delivering a modern urban living opportunity.	Production and Consumption	External Funding
Regeneration	Brownfield Register	5	2020/21	A list of sites that the Council considers to be suitable, available and viable for potential residential development.	To be confirmed	None required
Housing	Work with developers to deliver sustainable housing developments in Carlisle and promoting sustainable construction methodologies.	2	To be confirmed	Promoting sustainable Construction.	To be confirmed	None required
Housing	Work in partnership with social landlords, developers and architects to share knowledge and learning on sustainable construction.	2	To be confirmed	Promote the application of these principles on new developments.	To be confirmed	None required
Housing	Private Sector Housing Enforcement Policy and action	2	2020/21	The Private Sector Housing function is to improve the standard of private sector properties through, education, advice and enforcement. Enforcing the minimum level of energy provisions within their area.	Production and Consumption	None required
Housing	Empty Homes	2	2020/21	The need to bring empty private sector dwellings back into use is a key objective that is part of a wider strategy to tackle housing affordability.	Production and Consumption	External Funding
Housing	An integrated model and Housing Stock	2	2020/21	The detailed housing stock information provided in this report will facilitate the delivery of	Production and Consumption	None Required

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
	Condition Database (HSCD) and report (SAP)			housing strategy and enable a targeted intervention approach to improving housing, sections on Fuel poverty and energy efficiency. Includes improvement scenarios.		
Housing	Custom and Self-Build Register	2	2020/21	The custom/self build register will provide valuable information and evidence on the demand for self-build and custom house building.	Production and Consumption	None required
Housing	Homelife- home improvement grants	2	2020/21	Homelife Carlisle has various fully funded home improvement grants to help residents stay safe and warm and promote independence and healthy.	Production and Consumption	External funding
Housing	Homelife – Green Homes Grant (LADS Round 1b and future Round 2)	2	2021/22	A bid for funding under this scheme to improve the energy efficiency of low-income households in their area.	Production and Consumption	External funding £1,150,000 applied for.
Building Control	Energy Efficiency of developments (Part L Compliance)	2	2020/21	Building Regulations are set by the Government to protect the health and safety of people in and out of buildings, to promote energy saving and to make sure building works provide enough access and facilities for workers.	Production and Consumption	None required
Movement	Carlisle Local Cycling & Walking Infrastructure Plan	3	2020/21 and 2021/22	A plan to invest in active travel.	Consumption	£10,000 from existing budget as a contribution
Movement	Local Transport Plan Projects	3	2011-2026	LTP3 & LTP4 Implementation Plan.	Consumption	None required
Movement	Electric Vehicle Charging: On street Charging Infrastructure Working with partners to expand provision of	3	2019/20-2020/21	Stimulate demand for EV's in areas without off street parking Increased take up of electric vehicles, allowing people to save money on fuel costs Reduction air pollution and CO2 emissions	Production and Consumption	External funding secured The current SOSCI project has a budget of £220k to

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
	EV charging points in Carlisle including electric bikes					provide 40 connections
Movement	Support and promote a Travel to Work Partnership to develop travel options for employees.	3 & 5	2025-30	Low carbon, active transport options for commuting and work travel.	Consumption	None required
Enforcement	Local Environment ASB	5	2020/21	Tackling local ASB related to the local environment.	Not applicable	Budget 2021/22
Air and water quality	Air Quality Annual Status Report Action Plan	3	2020/21	Improved respiratory health and a reduction in associated health inequalities. Help people live healthier lives by preventing ill health and harm and promoting public health. Air pollution removal	Consumption	None required
Ambient noise and light	Regulatory Services Service Plan (Statutory Nuisances investigation and enforcement)	5	2020/21	Improved public and environmental health	Consumption	None required
Ambient noise and light	Planning Enforcement Policy and Register	5	2020/21	The council will try to make sure that planning rules are followed.	Consumption	None required
Contaminated Land	Guidance Contaminated Land Strategy and Register	5	2020/21	A strategic approach to identifying and securing the remediation of contaminated land.	Consumption	None required
Future Flood Risk Management	New flood defences	5	2021/22	The scheme will protect 1600 homes and businesses from flooding across the city once it's complete.	Not applicable	£25million grant in aid funding
Future Flood Risk Management	Multi-agency Flood Plan	5	2021/22	Small area plans to respond to and recover from future flooding.	Not applicable	None required
Future Flood Risk Management	New Coastal Strategy	5	2021/22	This strategy forms a key step in setting out our future approach to managing risks and will feed into our local plans.	Not applicable	LLFA

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
Severe weather and related risks	Work with partners of the Cumbria Local Resilience Forum to ensure that plans are in place to respond to climate change risks.	5	2020/21	Ensure that these plans are regularly tested and reviewed.	Not applicable	None required
Green infrastructure, countryside and landscapes	Green Infrastructure Strategy	5	2015-2030	Evidence base for Local Plan.	Potential Negative Emissions	None required
Green infrastructure, countryside and landscapes	Green Spaces Strategy	5	2020/21	To manage our green estate as a diverse and flourishing natural resource which provides a range of environmental services including resilience against future flooding, reducing the impacts of climate change and providing rich and varied wildlife habitats.	Potential Negative Emissions	None required
Green infrastructure	Develop and implement a tree strategy to manage risk and increase tree stocks.	5	2021/22	Biodiversity and carbon capture co benefits.	Potential Negative Emissions	None
Green infrastructure	Explore the potential of green roofs and living walls.	5	2022/23	Biodiversity and carbon capture co benefits.	Potential Negative Emissions	None
Wildlife and habitats (biodiversity)	Get Cumbria Buzzing	5	2021/22	Biodiversity and carbon capture co benefits.	Potential Negative Emissions	None
Wildlife and habitats (biodiversity)	Co-benefits of Phase 1 Flood Defences enhancements	5	2021/22	Enhancing habitats in Melbourne Park and improving recreation facilities, including new park benches and entrance features.	To be confirmed	None
Waste & Recycling	Targeted campaigns on waste reduction and recycling.	4	2021/22	Develop local and partnership communication plans for waste minimisation.	Consumption	None

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
				Promote national weeks of action.		
Waste & Recycling	Introduce a new 'medium' bin option (180Litres capacity) from April 2020.	4	2021/22	Encourage participation in recycling and increase recycling rates.	Consumption	Budget 2021/22
Waste & Recycling	Provide 180L or 140L bins free to residents moving into new-build homes.	4	2021/22	Encourage participation in recycling and increase recycling rates.	Consumption	Budget 2021/22
Waste & Recycling	Explore options to further encourage participation in recycling and increase recycling rates	4	2020-2025	Encourage participation in recycling and increase recycling rates.	Consumption	None
Waste & Recycling	Waste Data Model: Analysis of local data and trends.	4	2021/22	Utilise local data to target intervention and develop localised campaigns and focussed messages.	Consumption	None
Waste & Recycling	Food Waste: Prepare for potential new service	4	2022/23	From 2023 – potential for statutory, separate food waste collections from households.	Production and Consumption	Future Budget Bid
Waste & Recycling	Food Waste: Potential new commercial service	4	2022/23	From 2023 – potential for separate food waste collections from commercial premises. (chargeable)	Production and Consumption	None
Waste & Recycling	Partnership Working	4	2021/22	Increasing access to recycling. Explore opportunities to work in partnership with other local councils to develop solutions to common issues and share costs and risks.	Not applicable	None
Waste & Recycling	Partnership: Coordinate local response to Government Waste Strategy	4 & 5	2021/22	Delivery of a new Waste Strategy through the Cumbria Strategic Waste Partnership. Reducing carbon from Waste Sector in line with Cumbria-wide target of Carbon neutral by 2037.	Not applicable	None

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
Waste & Recycling	Help to promote Voluntary and Community Groups to be involved in recycling and reuse activities.	4	2022/23	Individuals feel more empowered to get involved in recycling and reuse activities.	Not applicable	None
Community Development	Funding Strategy: Funding Newsletter and support	1-5	2020/21	Increased external funding applied for and gained.	Not applicable	None
Community Development	Place Standard Project	5	2021/22	Task group to consider the best way forward given current position. Current place activity has paused in Scotland. Focus to Deliver Place Standard Programme = Place Board off this group. Establish links with Borderlands Place agenda	Not applicable	External Funding secured
Community Development	Carlisle Resilience Group ~Community Resilience 'future shocks'	4 & 5	2020/21	Ensure our communities are resilient and prepared for winter and consider planning for future emergencies.	Not applicable	External funding bid
Community Development	Collaborative Funding Pilot	5	2021/22	Explore the opportunity to pilot a collaborative funding model across the locality.	Not applicable	None
Community Development	Cumbria Sustainability Network	5	2021/22	Relationship building and understanding local authority decision making Communities will influence central decision-making structures and influencing partnership approaches.	Not applicable	ZCCP £100,000
Community Development	Carlisle Community Action	5	2020-2025 To be confirmed	Communities will influence central decision-making structures and influencing partnership	Not applicable	ZCCP £TBC

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
				approaches		
Community Development	Cumbria Youth Climate Action Programme	5	2020-2025 To be confirmed	Young people will be empowered to engage in meaningful ways with politicians, business leaders, policy makers and the media. Gatekeepers of emissions (for example local authorities and businesses) will have a mechanism for, and confidence to, engage with and be influenced by young people.	Not applicable	ZCCP £80,000
Community Development	Community Carbon Literacy Programme	5	2020-2025 To be confirmed	Organisations and individuals have developed a sense of agency and responsibility and a much better understanding of the causes of, and solutions to, the climate crisis.	Not applicable	ZCCP £TBC
Community Development	Mapping Repair Cafes and peer support to establish new cafes	4	2020-25 To be confirmed	Individuals feel more empowered and better skilled to take climate action.	Not applicable	ZCCP
Food	Work with partners on the Sustainable Food Action Plan to achieve Sustainable Food City Status.	4	2021/22	A holistic approach to food and that are achieving significant positive change on a range of key food health and sustainability issues.	Not applicable	External Funding
Food	Work with partners on a programme for healthy eating including cooking skills to help reduce reliance on processed and packaged food.	4	To be confirmed	Local communities having access to a range of healthy and affordable food options.	Consumption	None

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
Food	Allotments and community gardens	4	2020/21	Low carbon vegetable growing is increased in Cumbria. Maintain current occupancy rates for allotments and encourage provision of community gardens and allotments in new developments	Consumption and potential negative emissions	None
Food	Low Carbon Food Programme	4	2020-2025 To be confirmed	Low Carbon Food network is set up and supports a reduction in carbon emissions from what people eat.	Not applicable	ZCCP £TBC
Food	Grow Local Eat Local project	4	2020-2025 To be confirmed	Low carbon vegetable growing is increased in Cumbria. Local retailers are connected to vegetable growers providing low carbon food and reduced food miles. Carbon usage to grow vegetables is offset through an increase in agro-forestry.	Consumption	ZCCP £TBC
Renewable Energy	Community Energy Support	2	2020-25 To be confirmed	2 new community energy projects are developed and installed using innovative approaches.	Not applicable	ZCCP £60,000
Communications and engagement	Sharing Learning Nationally		2020-25 To be confirmed	Partners and communities take part in national learning and knowledge exchange events.	Not applicable	
Communications and engagement	Broadening engagement and overcoming disadvantage	5	2020-25 To be confirmed	Individuals feel supported to learn how they can take climate action.	Not applicable	ZCCP £20,000
Consultancy	Expert Advice	1-5	2020-25 To be confirmed	A central pot of funding will be dedicated to contracting consultancy expertise to co-design solutions with businesses, local authorities and communities as they emerge through the life of the project.	Not applicable	ZCCP £30,000

Theme	Activity	LECCS Obj.	Timeframe	Outcomes	Carbon Accountancy	Finances
Governance	Cumbria Carbon Monitoring and wider evaluation	5	2020-25 To be confirmed	New and robust methodology available for community led and partnership projects across the UK.	Not applicable	ZCCP £20,000

Action planning through regional and countywide partnerships

The key countywide partnerships are listed below, each of these partnerships have multi-agency, countywide strategies and plans in progress or in place. Working across these partnerships will help deliver this strategy:

Borderlands Inclusive Growth Deal

Encouraging Green Growth: Borderlands is committed to becoming a carbon neutral region. Our whole system approach to investing in green energy, coupled with our plans to maximise the benefit from our outstanding natural resources will lead to a vibrant economy driven by clean energy.

Energy Investment Company

A newly established Borderlands Energy Investment Company will act as a strategic coordinator and investment route to establish a Borderlands Energy Masterplan. A successfully managed and delivered Energy Masterplan with priorities, that complement the UK and Scottish Government's policies for clean growth and energy will establish a route to bringing Borderlands closer to a carbon neutral region whilst making our area more attractive to live and work in. The Borderlands' Energy Investment Company will be established and operated by the five member authorities, along with the UK and Scottish Government. These seven public sector bodies would be the main members further supported by a technically skilled energy-specific governance structure highlighted in this Strategic Outline Business Case and further supported by the established wider Borderlands governance structure.

Energy Masterplan

The overarching Borderlands Energy Masterplan will be developed following a Scottish Enterprise designed approach, and will establish:

The role of green energy in delivering growth through new business opportunities and investment and a basis for future planning and investment decisions. Masterplanning is identifying investment activity that needs to be taken forward at a Borderlands wide geographic area, and activity that needs to take place at a more local level.

The masterplanning covers private sector investment appetite, feasibility of securing investment, and role of public funds in leveraging this investment, which will provide important direction in generating project ideas for the company to assess. The master planning exercise will draw on the baseline of information and strategic planning that is already available or underway. This includes baseline evidence for each of the four geographies which comprise Borderlands. For the South of Scotland this is collated in a study undertaken for Scottish Government in Spring 2018 (BuroHappold study), while in Cumbria and Northumberland, baseline information can be derived from sub-national data held by BEIS and analysed in the development of the respective local energy strategies for each area.

Natural Capital Innovation Zone: Linked to the Innovation Centres for Dairy and Forestry, this designation will present opportunities to introduce new ways of working. These will fuse together the best practice from both environmental stewardship initiatives (such as the Defra pioneers, landscape partnerships, river trusts, forestry investment zones) and economic and social growth initiatives (such as the LEADER, neighbourhood and community planning, and strategic economic plans) to maximise the full benefit from our countryside within the context of responding to climate change.

- **Zero Carbon Cumbria Partnership**

- Project Plan 2020-2025

Cumbria Strategic Waste Partnership

- New strategy and sub groups in progress.

Cumbria Strategic Flood Partnership

- Strategy works underway.

Cumbria Local Resilience Forum

- Strategy and Programme in place.

Cumbria Public Health Alliance

- Joint Public Health Strategy and action plan.

In addition the following strategies will be important in achieving the countywide target:

- Cumbria Transport Strategy (Previously Local Transport Plan LTP).
- Cumbria Cycling Strategy /Cycling and Walking Infrastructure Plan (CWIPs).
- LEP Local Industrial Strategy.
- Local Energy Plan (LEP).
- Minerals and Waste Local Plan.

Areas for action planning, 2025-30 and beyond

Theme	Action	LECCS Obj.	Timeframe	Outcome	Carbon Accountancy	Finances
Assets	Fleet Strategy: Alternative fuels vehicle replacement plan for each service	1	2025-30	Increase fleet challenge with further fleet reductions, increased use of alternative travel options and increased introduction of alternative fuelled vehicles.	Production (Scope 2)	Future budget bids
Assets	Future fleet and depot options: shared resources such as pool cars and car clubs.	1 & 5	2025-30	Continue to explore options to share resources.	Production (Scope 1 and 2)	None required
Local Plan	Urban Consolidation Centres (UCC)	2	2030-35	Urban Consolidation Centres can enable last mile deliveries to be made using electric freight vehicles (including e-bikes) rather than diesel-powered HGVs.	Consumption	None required
Local Plan	Pennine AONB Plan	5	2025-30	Land Use, Land Use Change and Forestry (LULUCF) interventions to help offset within the UK.	Potential Negative Emissions	None required
Local Plan	Solway AONB Plan	5	2025-30	Land Use, Land Use Change and Forestry (LULUCF) interventions to help offset within the UK.	Potential Negative Emissions	None required
Future Flood Risk Management	Natural Flood Management Projects	5	2025-30	Reduce flood and coastal erosion risk through measures that help to protect, restore and emulate the natural functions of catchments, floodplains, rivers and the coast.	Consumption	External funding
Wildlife and habitats (biodiversity)	Net Bio diversity Gain for all our parks and open spaces	5	2025-30	Biodiversity and carbon capture co benefits.	Offsetting	External funding

Outline Carbon Management Plan

Carbon Management Plan for 2020-2025 to reduce energy and fossil fuel consumption for the City Council's estate and operation.

These are selected actions from that action plan that are considered the most significant in making the Council net zero by 203X, based on a production accounting methodology.

These actions will be approached in the following stages:

- Decarbonisation of operational activity
- Microgeneration of renewal energy from operational assets
- Offsetting through land use and land use change activities

The actions include:

- Sands Centre Redevelopment
- Civic Centre Ground Floor Reinstatement
- Asset Management Plan & Maintenance Plan
- Energy Management System
- Footway Lighting (LED Project)
- Fleet Strategy, future fleet and depot options
- Decarbonisation of Estate
- One Public Estate Project (Phase 7)
- ICT Strategy: Agile working ICT equipment and networks
- Funding Strategy: Identifying CAPEX Opportunities for decarbonisation and renewal energy
- Procurement: Review activity and strategy to develop a procurement guide on climate change impacts/assessment

Outline Community Engagement & Development Plan

Selected actions from the action plan that are considered the most significant in community engagement and development.

Actions include:

- New and refreshed webpages for Local Environment and Climate Change
- Interactive programme of digital communication and engagement
- Targeted campaigns to encourage behaviour change
- Celebrating success with local case studies demonstrating positive action
- Partnerships: Collaboration on a wider, local corporate response
- Partnerships: Carlisle Ambassadors and Young Ambassadors sessions on Local Environment and Climate Change
- Help to promote Voluntary and Community Groups to be involved in recycling and reuse activities
- Funding Strategy: Funding Newsletter and support
- Place Standard Project
- Carlisle Resilience Group Community Resilience 'future shocks'
- Collaborative Funding Pilot
- Cumbria Sustainability Network
- National and Countywide Citizens' Assembly/ Jury
- Carlisle Community Action
- Cumbria Youth Climate Action Programme
- Community Carbon Literacy Programme
- Mapping Repair Cafes and peer support to establish new cafes
- Sharing learning nationally
- Broadening engagement and overcoming disadvantage

Definitions and glossary

The definition of local environment for the strategy is the surrounding conditions or forces, these can be local or global conditions or forces. Covering topics to include:

- Air and water quality
- Ambient noise and light
- Climate change, adaptation (Future Flood Risk Management)
- Climate change, mitigation and low carbon energy
- Contaminated Land
- Green infrastructure, countryside and landscapes
- Tackling pollution
- Severe weather
- Waste minimisation
- Wildlife and habitats (biodiversity)

t	tonnes
kt	thousand tonnes
mt	million tonnes
CO ₂ e	Carbon Dioxide equivalents
IPCC	Intergovernmental Panel Climate Change.
GHG	Greenhouse Gas
GGP	Greenhouse Gas Protocol.
Carbon Footprint	A carbon footprint measures the total greenhouse gas emissions caused directly and indirectly by a person, organisation, event or product. ⁴
Net- zero	Carbon neutral or net zero carbon is the goal of ensuring that any given activity does not cause any additional carbon dioxide (or other greenhouse gas) to be added to the atmosphere. The net zero position can be achieved by balancing a measured amount of carbon released with an equal amount of carbon offsetting activities.
Decarbonisation	The process of removing or reducing the carbon dioxide (CO ₂) or equivalents from human activities.
LULUCF	Land use, land-use change and forestry.

⁴ [Carbon Trust](#)

Links and references

Local Environment (Climate Change) Strategy (LECCS)

<https://www.carlisle.gov.uk/Council/Council-and-Democracy/Climate-Change>

Zero Carbon Cumbria Programme

<https://cafs.org.uk/our-projects/zero-carbon-cumbria-programme/>

Ashden Toolkit

<https://ashden.org/climate-action-co-benefits-toolkit/>

Friends of the Earth 33 Actions for Local Councils

<https://policy.friendsoftheearth.uk/insight/33-actions-local-authorities-can-take-climate-change>

Climate Emergency Action Planning

<https://climateemergency.org.uk/session-one/>

Committee on Climate Change Net Zero report

<https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-The-UKs-contribution-to-stopping-global-warming.pdf>

National Climate Assembly Report recommendations

<https://www.climateassembly.uk/report/>

UK Baseline

<https://www.ons.gov.uk/economy/environmentalaccounts/articles/netzeroandthedifferentofficialmeasuresoftheuksgreenhousegasemissions/2019-07-24>

Cumbria Baseline Report

<https://www.cumbriaobservatory.org.uk/environment/environment-further-information/>

BEIS, June 2019, UK local authority and regional carbon dioxide emissions national statistics: 2005-2017. <https://tinyurl.com/UKCO2PB>

Centre for Ecology & Hydrology for BEIS (2019). Mapping Carbon Emissions & Removals for the Land Use, Land Use Change and Forestry Sector: Report based on the 1990-2017 Inventory. See: www.gov.uk/government/statistics/uk-local-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017.

Carbon Trust

<https://www.carbontrust.com/resources/carbon-footprinting-guide>